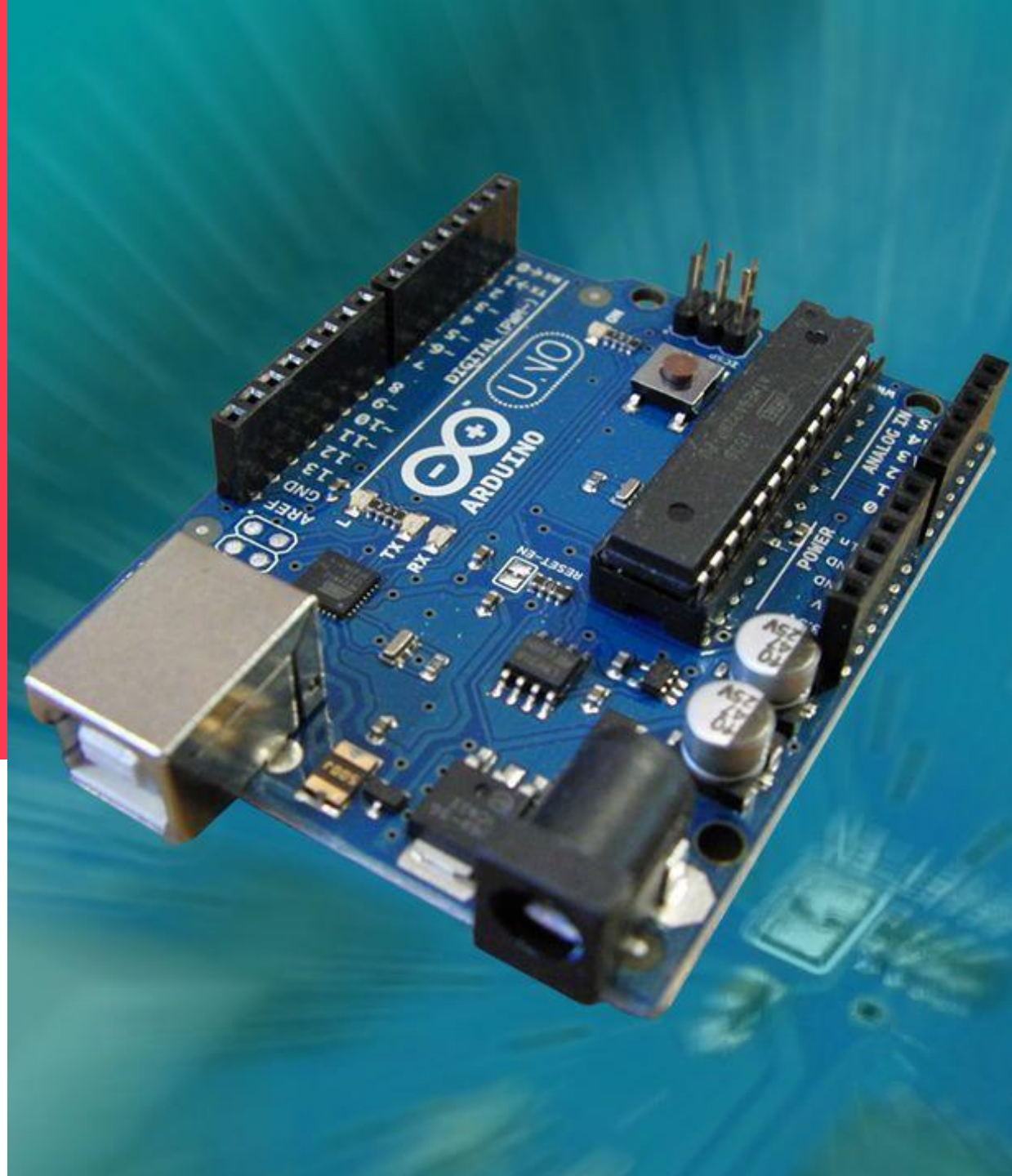
INTRODUÇÃO AO ARDUINO

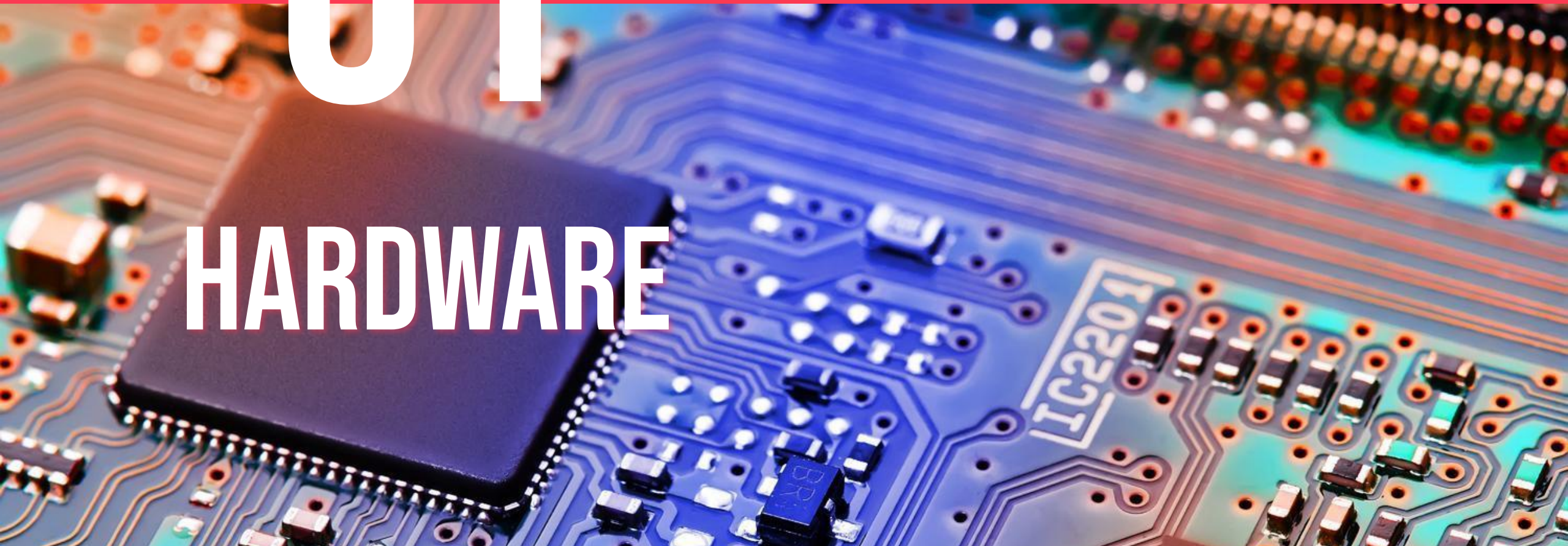


EQUIPE CERRADO BAJA SAE

Índice

01

HARDWARE



Hardware

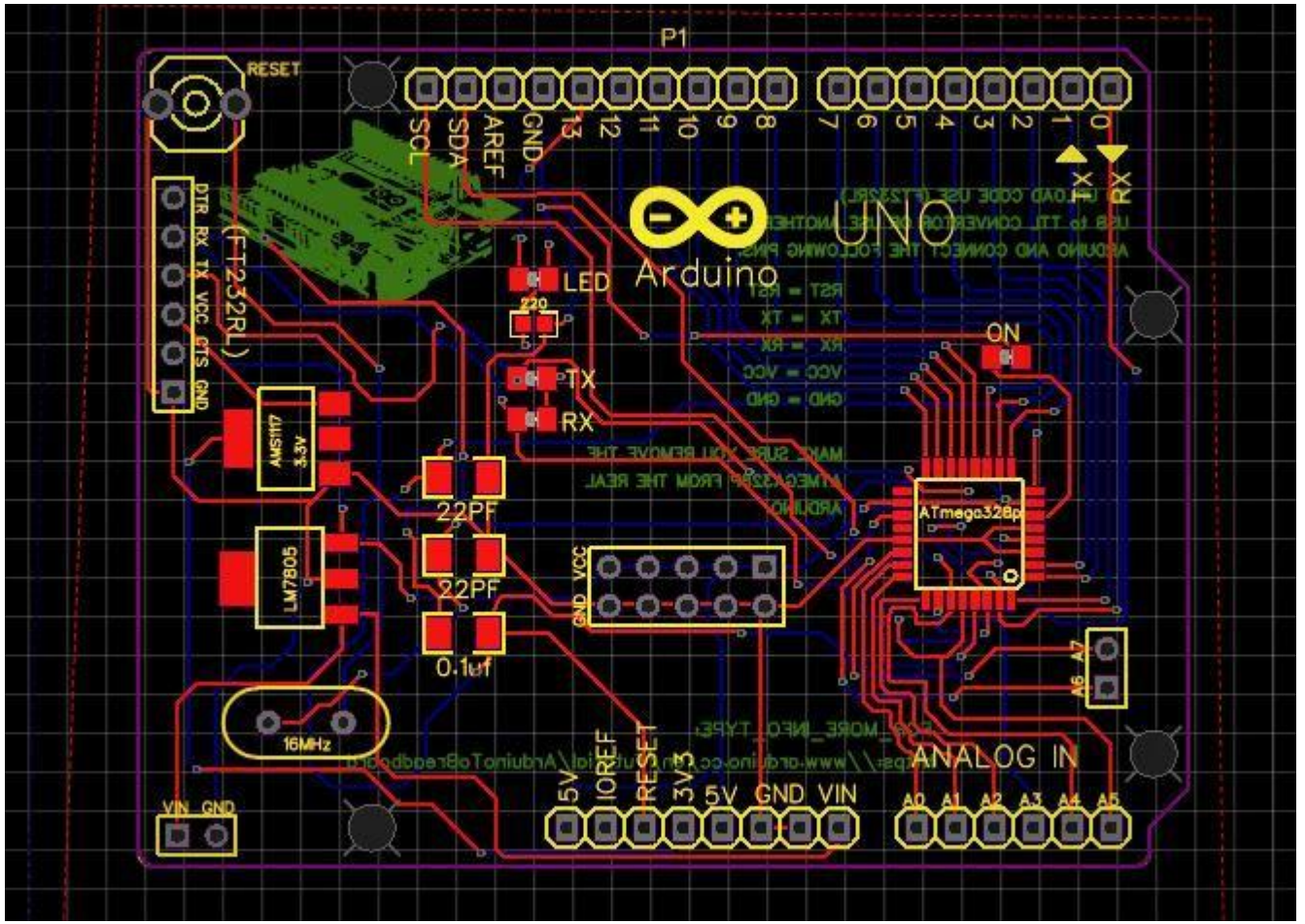
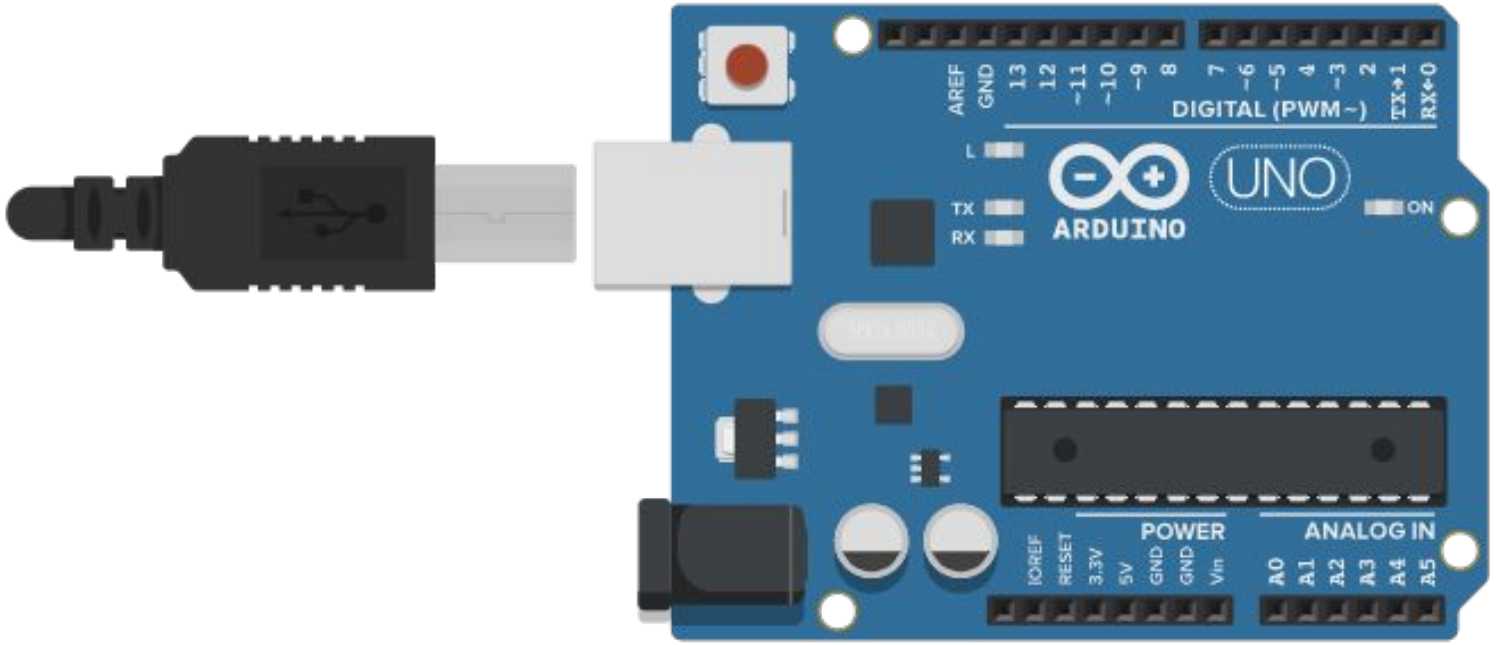
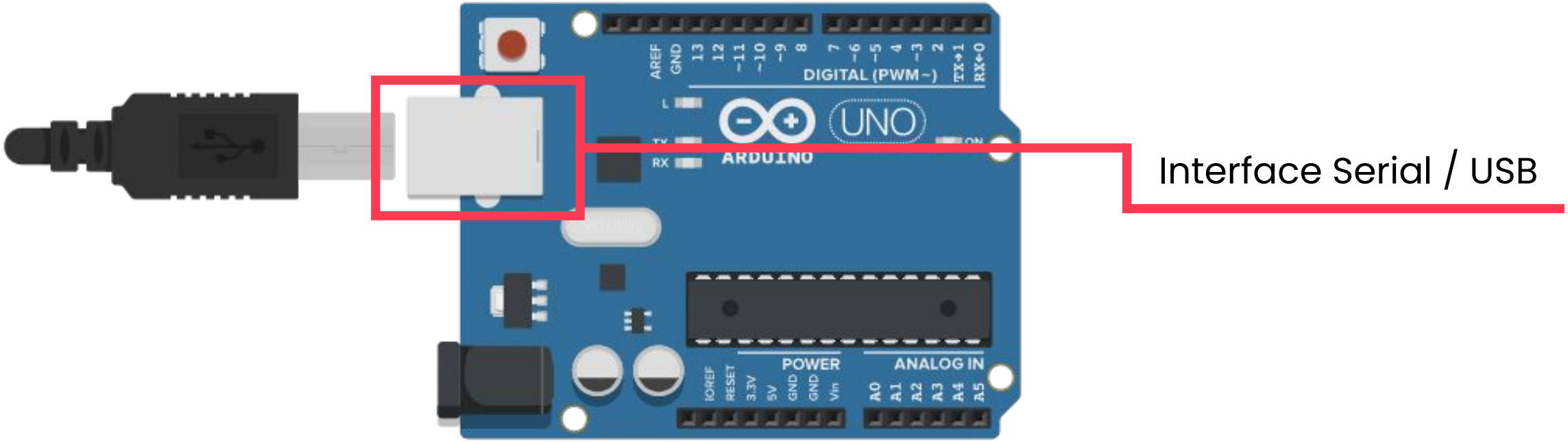


Foto de PCBway.com

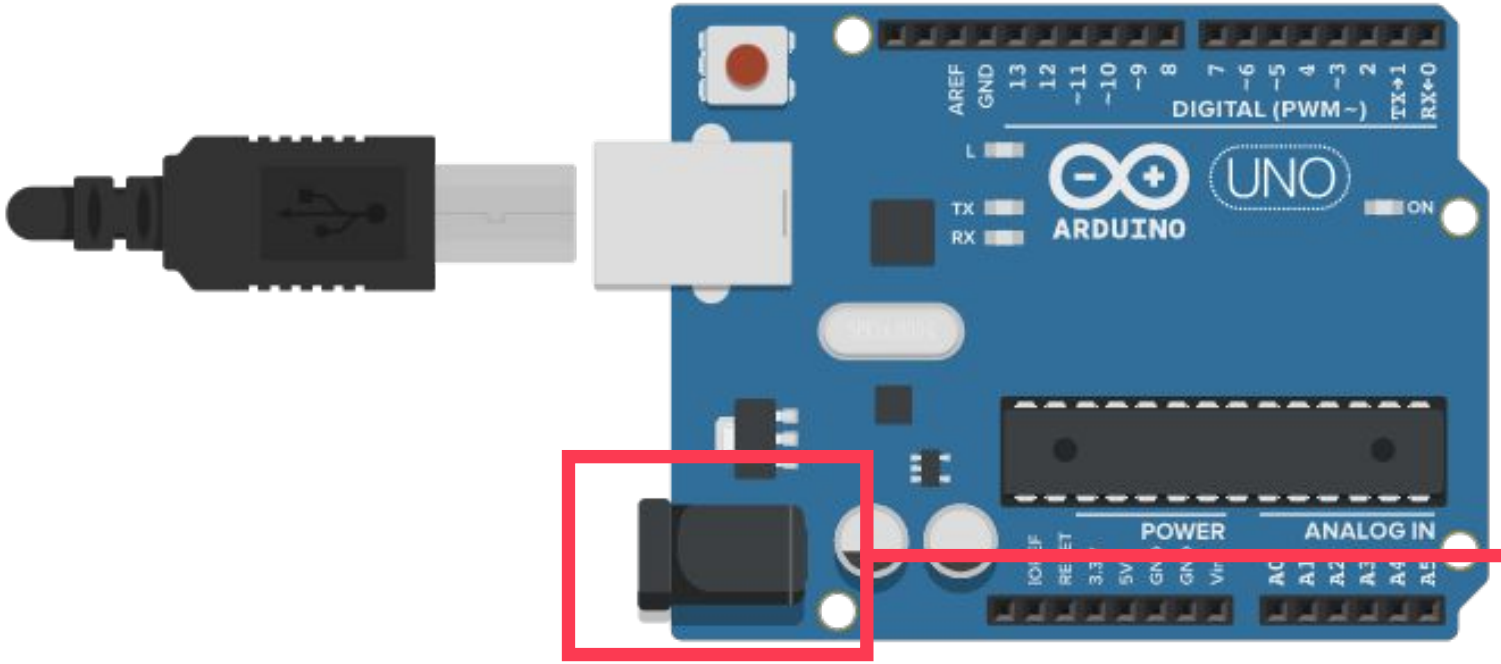
Hardware


AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
DIGITAL (PWM~)
L
TX
RX
ARDUINO
UNO
ON
POWER
ANALOG IN
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5

Hardware


Interface Serial / USB
DIGITAL (PWM~)
POWER
ANALOG IN
UNO
ARDUINO

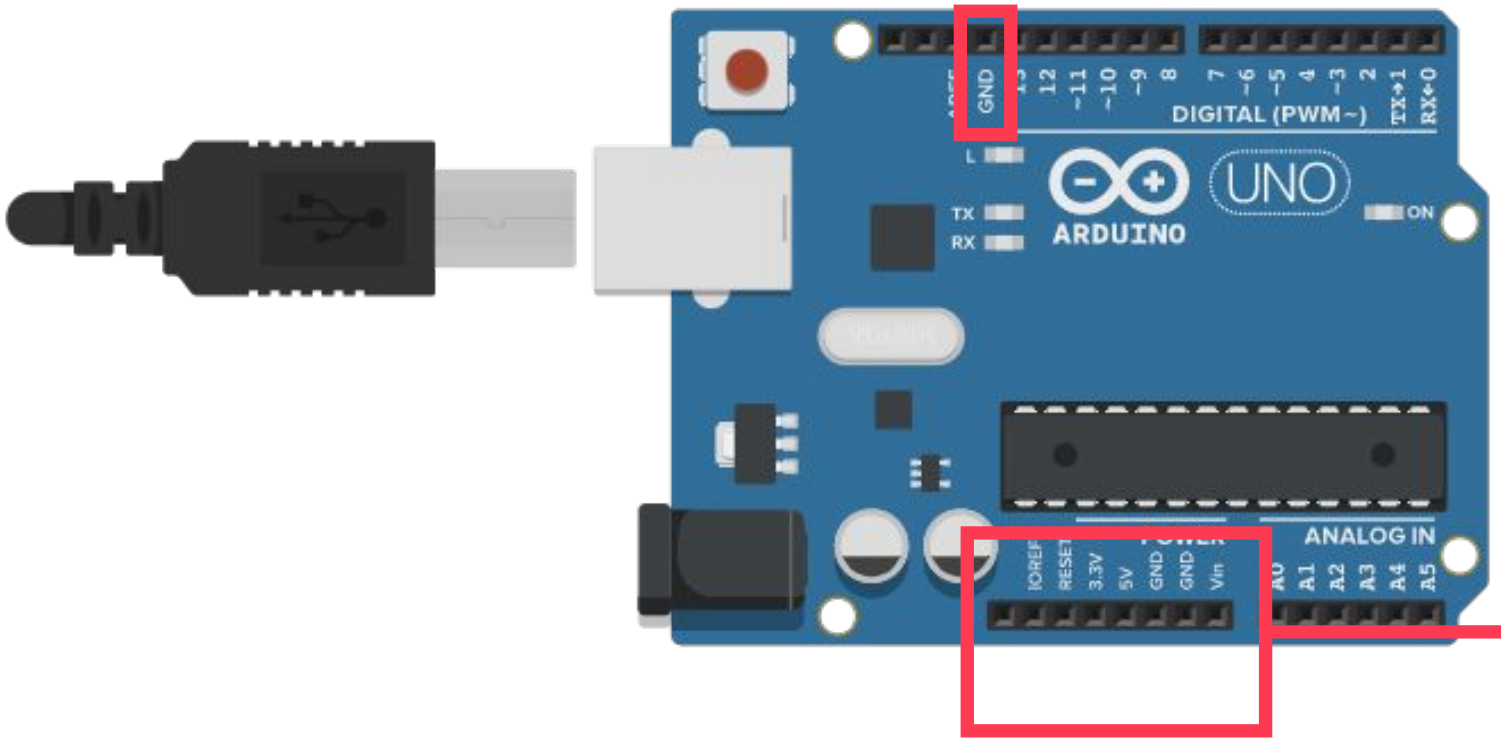
Hardware



Alimentação Externa

7 ~12V

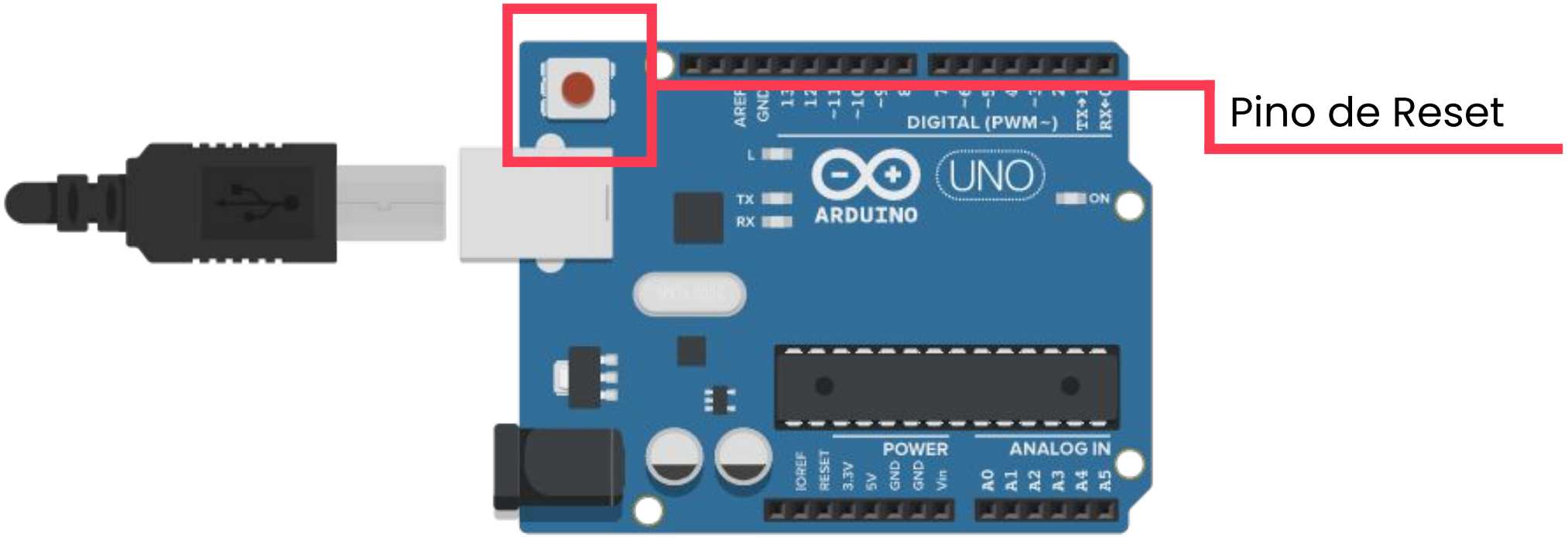
Hardware



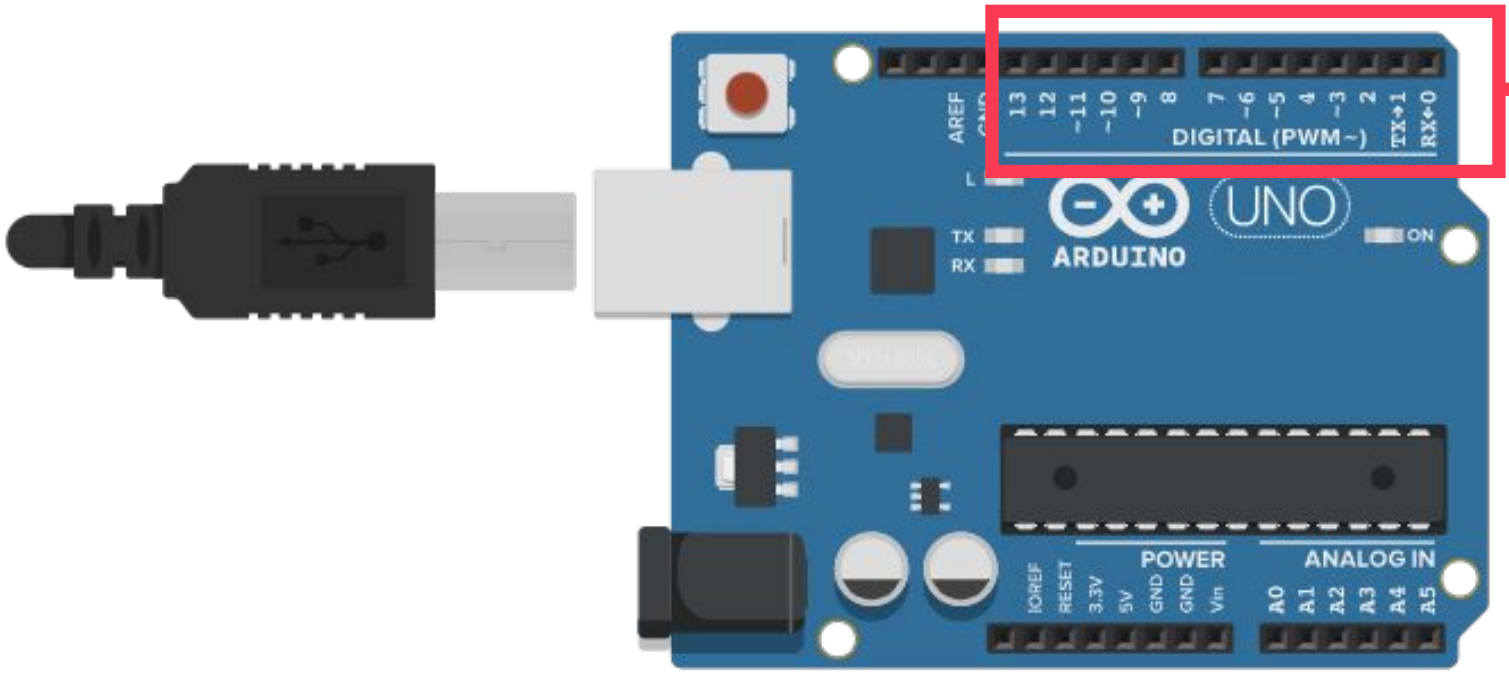
- IOREF
- RESET
- 3,3V
- 5V
- GND
- Vin

Pinos de Alimentação

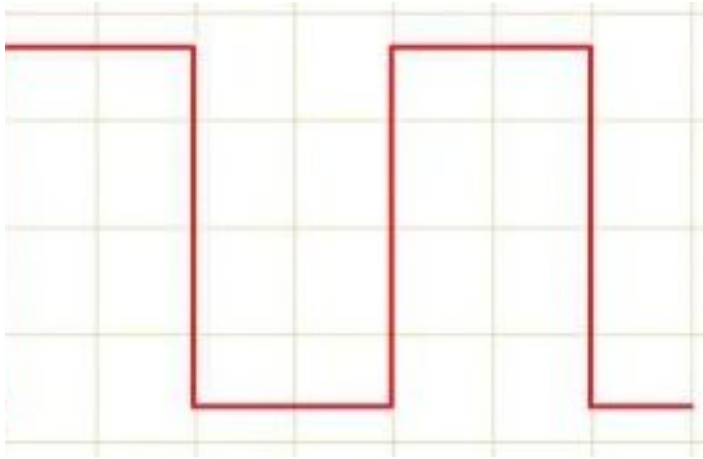
Hardware



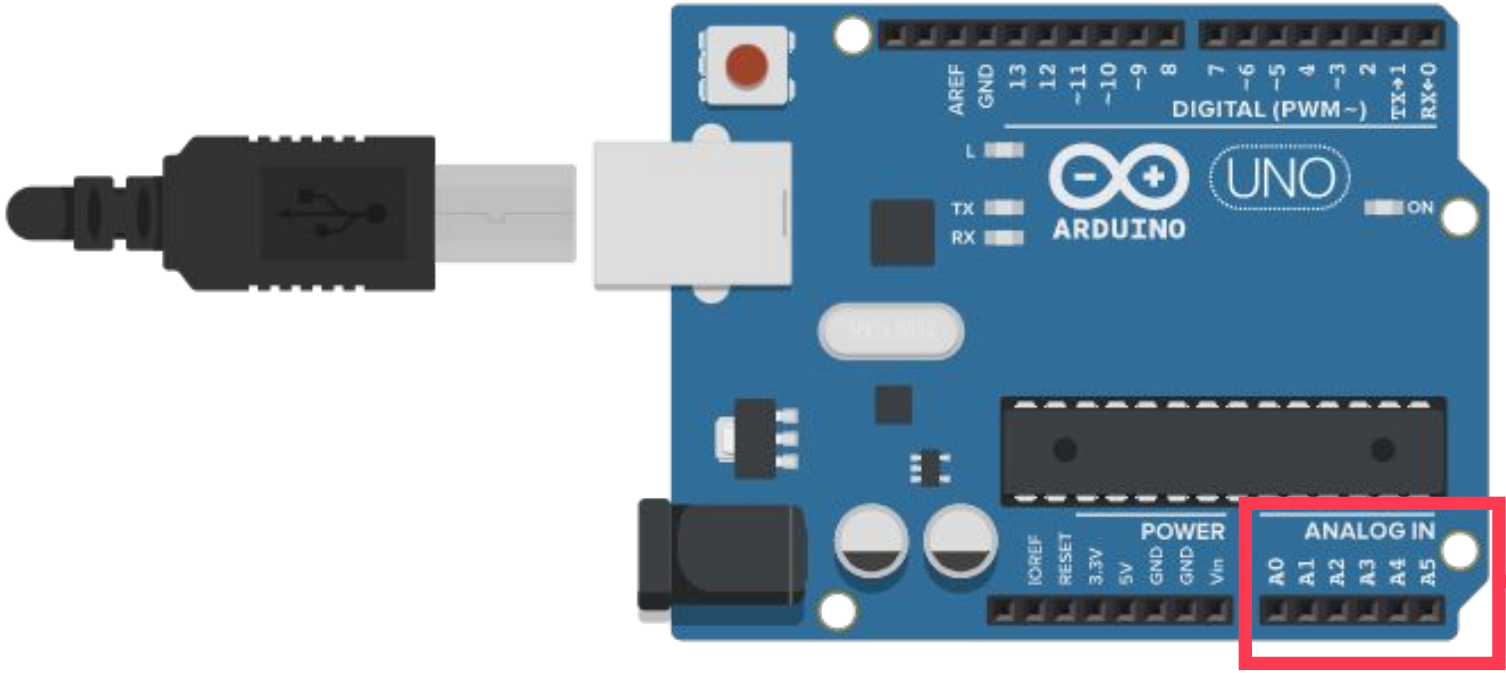
Hardware

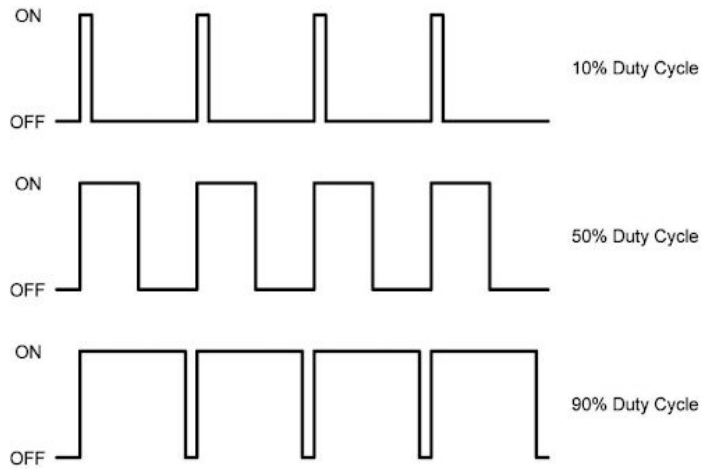


E/S Digitais



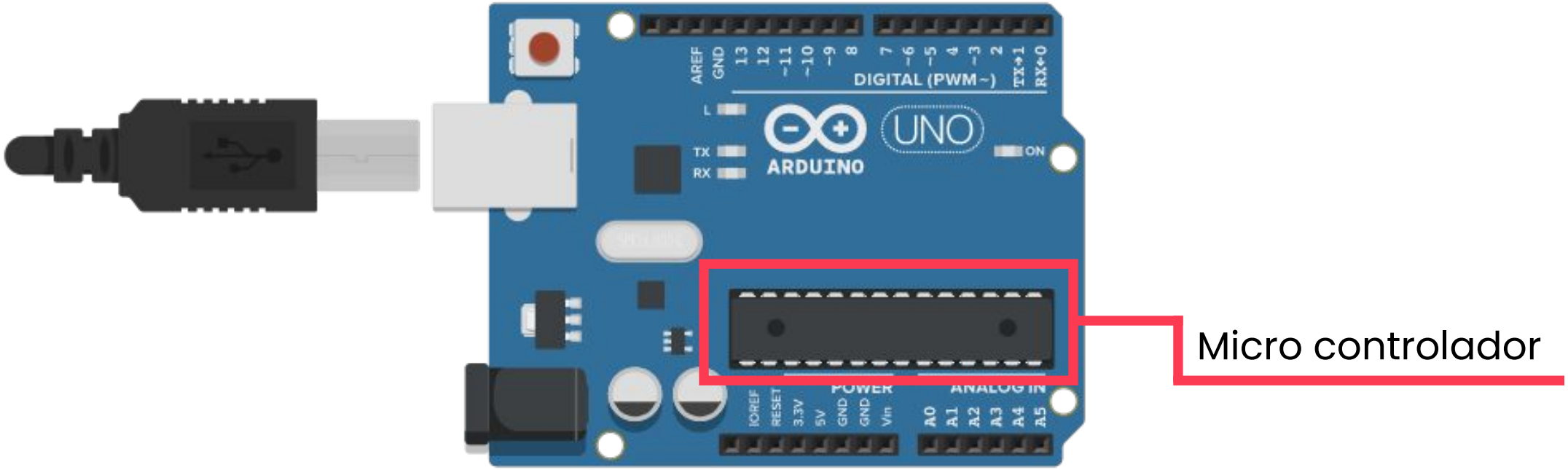
Hardware





Entradas Analógicas

Hardware


AREF
GND
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~11
~10
~9
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TX→1
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ANALOG IN
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5
Micro controlador

02

PRODUTOS ARDUINO

Arduino

UNO

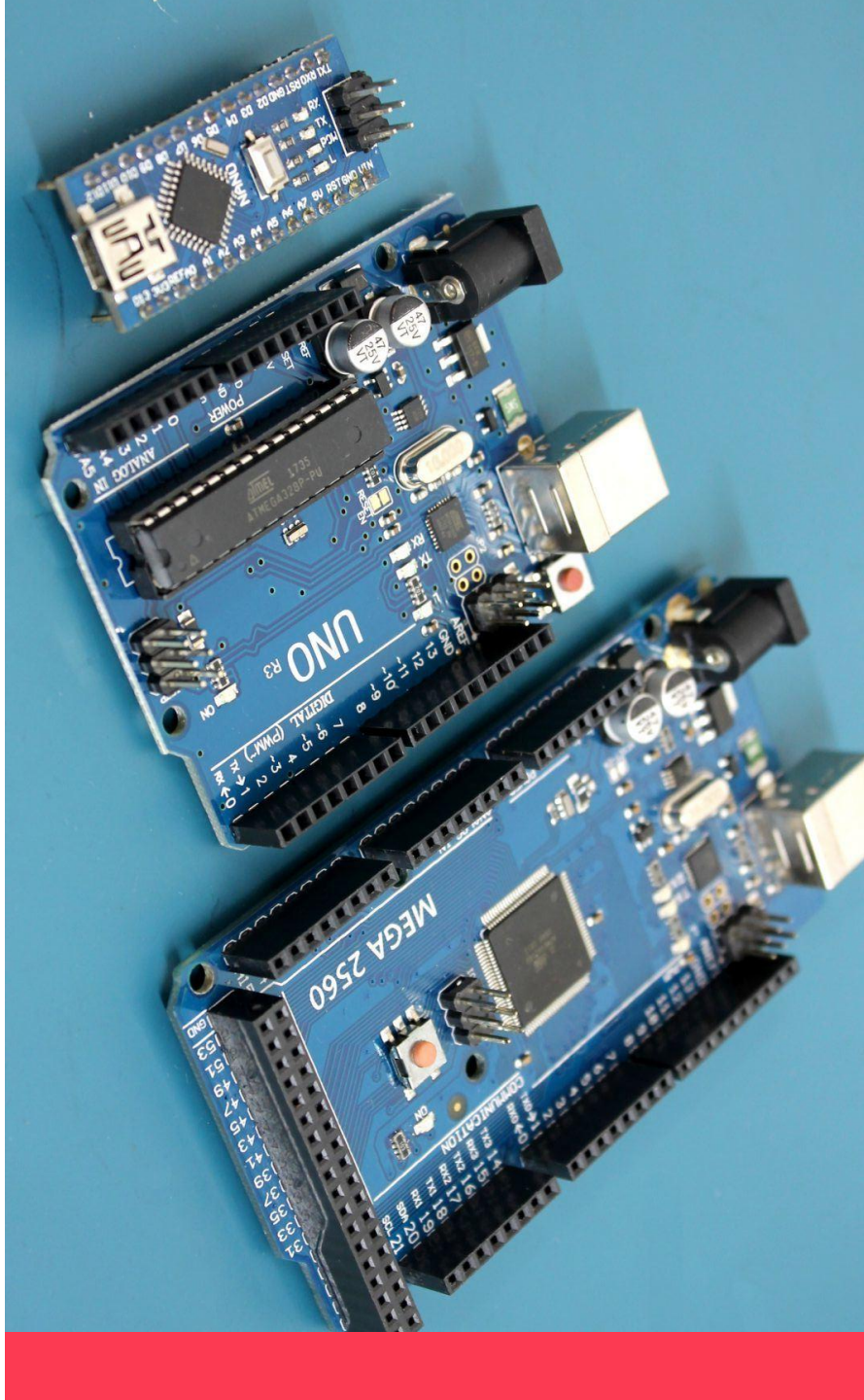
Perfeito para iniciantes

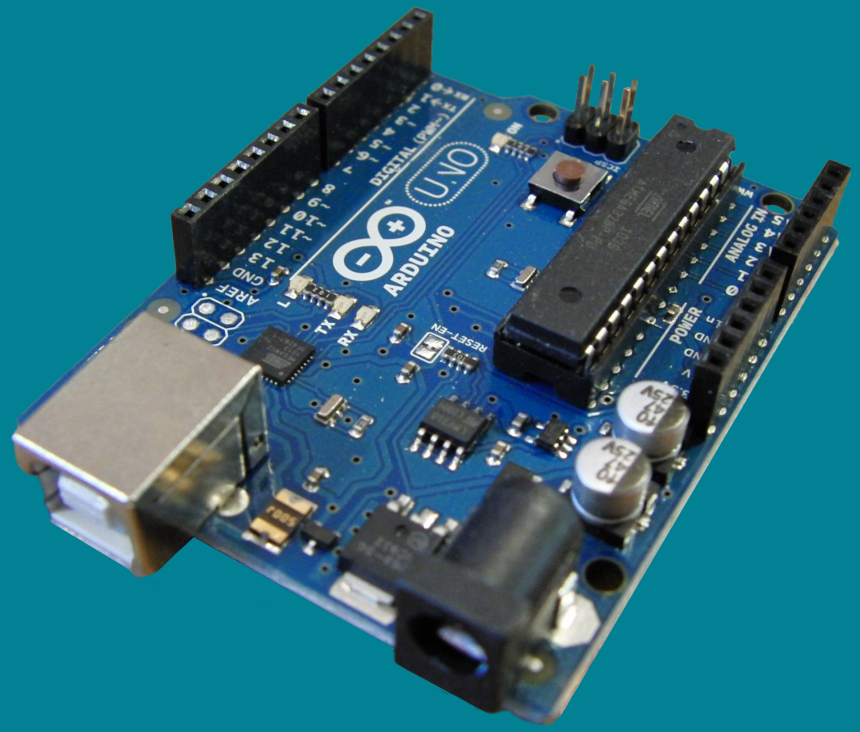
MEGA

Projetos mais elaborados

NANO

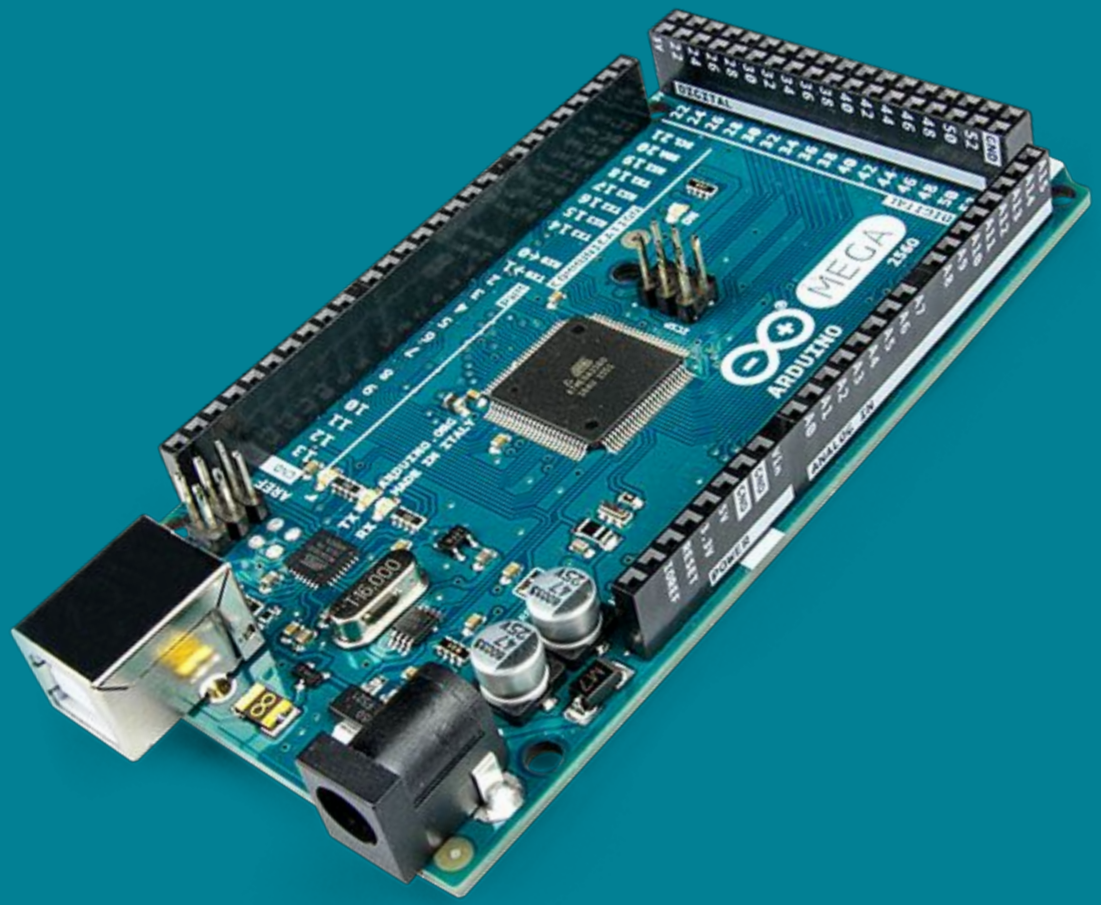
Pequeno e completo





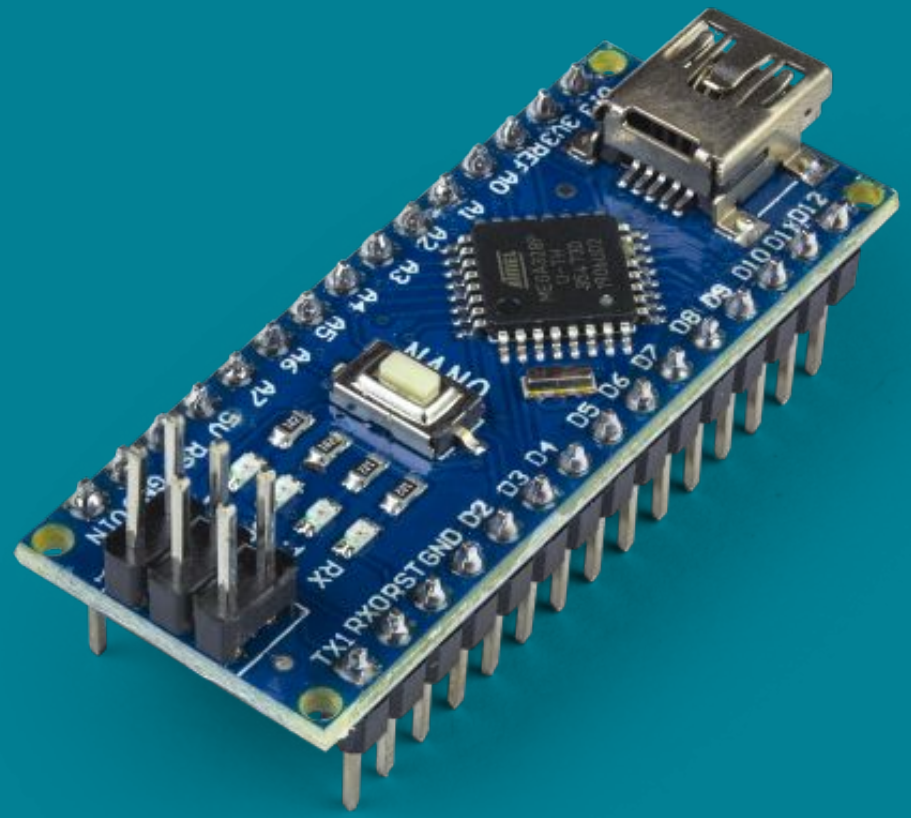
Arduino UNO

- Microcontrolador – ATmega328P
- Tensão Operacional – 5V
- Tensão de Entrada – 7~12V
- Pinos Digitais - 14 (6 com PWM)
- Pinos Analógicos - 6
- Memória Flash – 32KB
- SRAM – 2KB
- EEPROM – 1KB
- Clock – 16MHz



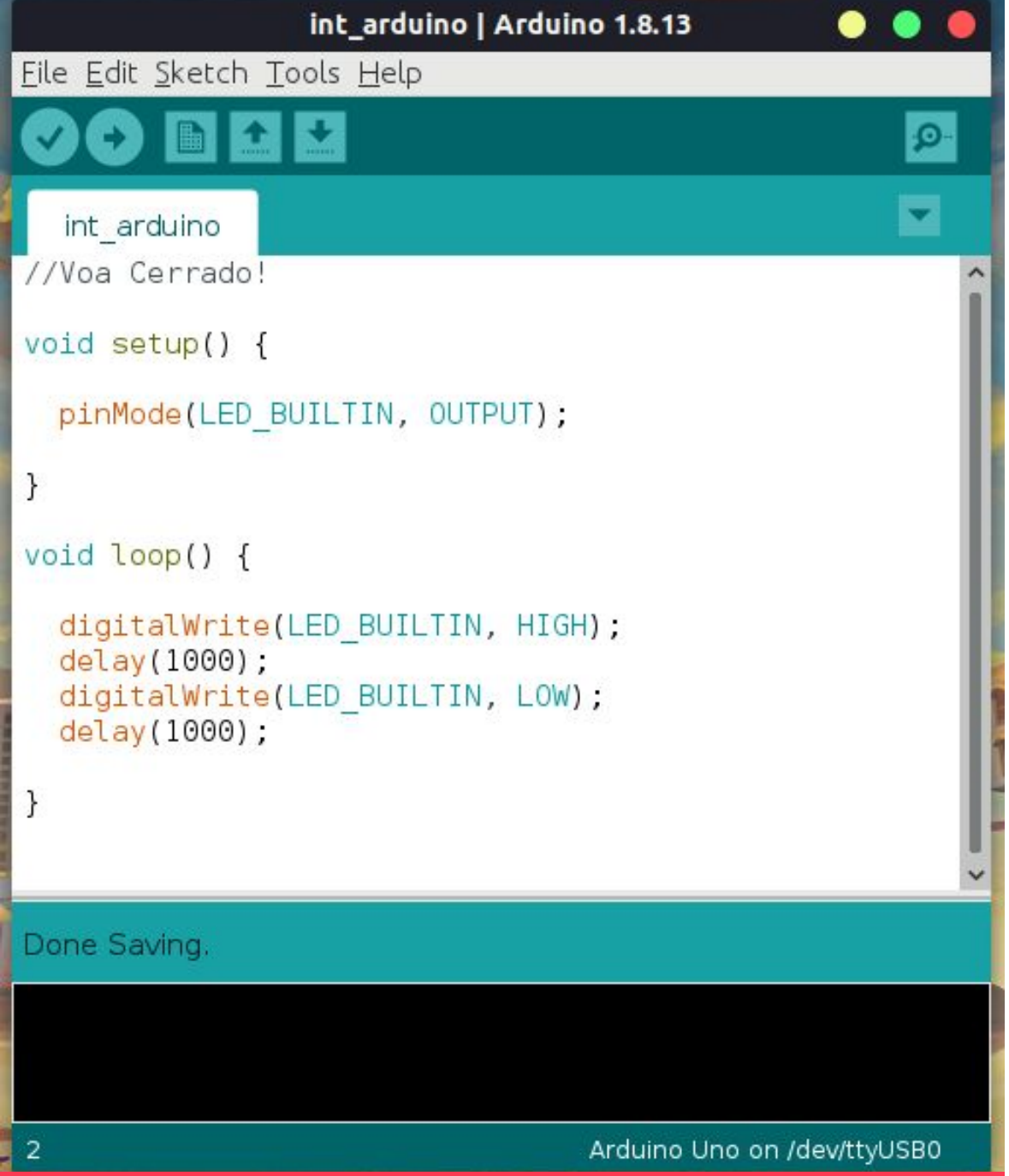
Arduino MEGA

- Microcontrolador – ATmega2560
- Tensão Operacional – 5V
- Tensão de Entrada – 7~12V
- Pinos Digitais - 54 (15 com PWM)
- Pinos Analógicos - 16
- Memória Flash – 256KB
- SRAM – 8KB
- EEPROM – 4KB
- Clock – 16MHz



Arduino NANO

- Microcontrolador – ATmega328
- Tensão Operacional – 5V
- Tensão de Entrada – 7~12V
- Pinos Digitais - 22 (6 com PWM)
- Pinos Analógicos - 8
- Memória Flash – 32KB
- SRAM – 2KB
- EEPROM – 1KB
- Clock – 16MHz



IDE

Ambiente de Desenvolvimento Integrado

- Destaque de sintaxe;
- Correção de erros;
- Monitor Serial;

disponível em: arduino.cc/en/main/software

IDE


int_arduino | Arduino 1.8.13
File Edit Sketch Tools Help
int_arduino
//Voa Cerrado!
void setup() {
pinMode(LED_BUILTIN, OUTPUT);
}
void loop() {
digitalWrite(LED_BUILTIN, HIGH);
delay(1000);
Verificar

IDE


int_arduino | Arduino 1.8.13
File Edit Sketch Tools Help
int_arduino
//Voa Cerrado!
void setup() {
pinMode(LED_BUILTIN, OUTPUT);
}
void loop() {
digitalWrite(LED_BUILTIN, HIGH);
delay(1000);
Carregar

IDE


int_arduino | Arduino 1.8.13
File Edit Sketch Tools Help
int_arduino
//Voa Cerrado!
void setup() {
pinMode(LED_BUILTIN, OUTPUT);
}
void loop() {
digitalWrite(LED_BUILTIN, HIGH);
delay(1000);
Novo Código

IDE


int_arduino | Arduino 1.8.13
File Edit Sketch Tools Help
int_arduino
//Voa Cerrado!
void setup() {
pinMode(LED_BUILTIN, OUTPUT);
}
void loop() {
digitalWrite(LED_BUILTIN, HIGH);
delay(1000);
Abrir

IDE


int_arduino | Arduino 1.8.13
File Edit Sketch Tools Help
int_arduino
//Voa Cerrado!
void setup() {
pinMode(LED_BUILTIN, OUTPUT);
}
void loop() {
digitalWrite(LED_BUILTIN, HIGH);
delay(1000);
Salvar

IDE

Monitor Serial

IDE


int_arduino
//Voa Cerrado!
void setup() {
pinMode(LED_BUILTIN, OUTPUT);
}
void loop() {
digitalWrite(LED_BUILTIN, HIGH);
delay(1000);
digitalWrite(LED_BUILTIN, LOW);
delay(1000);
}
Ambiente de Programação
Done Saving.

IDE

IDE

Linha do Cursor

Placa Arduino e Porta Serial

03

CÓDIGOS E EXEMPLOS

TinkerCAD

Grátis e Online

3D Design

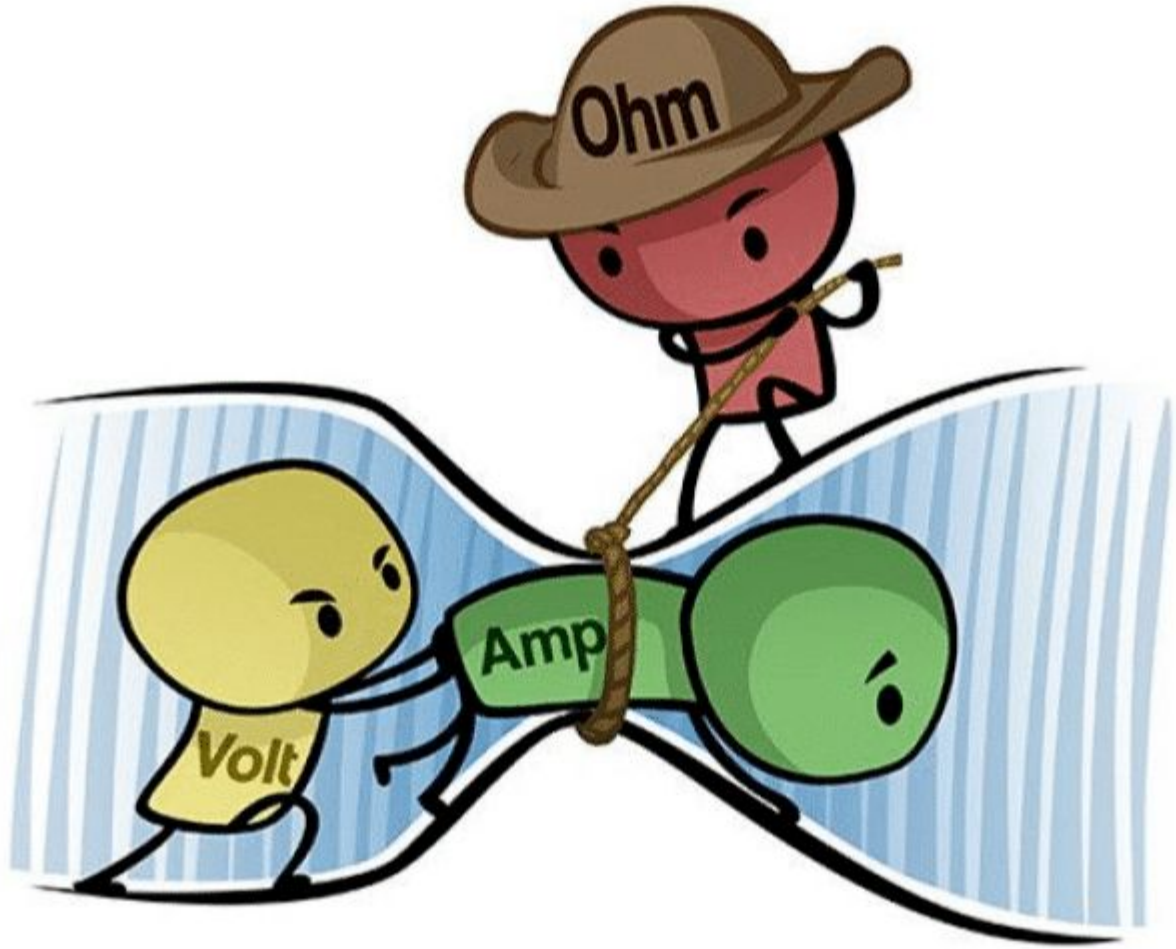
Circuitos

tinkercad.com/

Lei de Ohm

$$V = R \cdot I$$

$$R = \frac{V}{I}$$

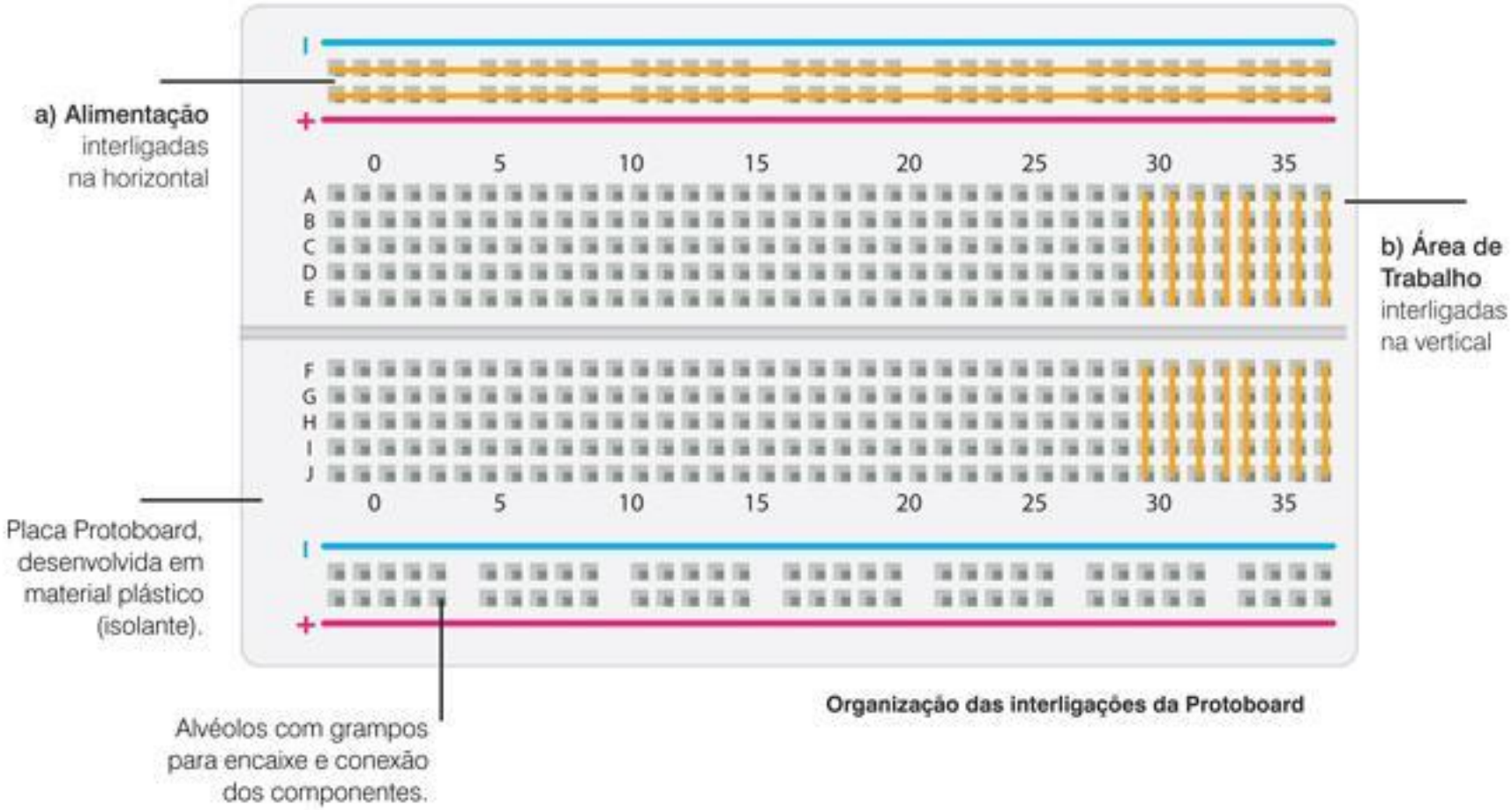


Lei de Ohm

$$R = \frac{Valimentação\ - Vled}{I}$$

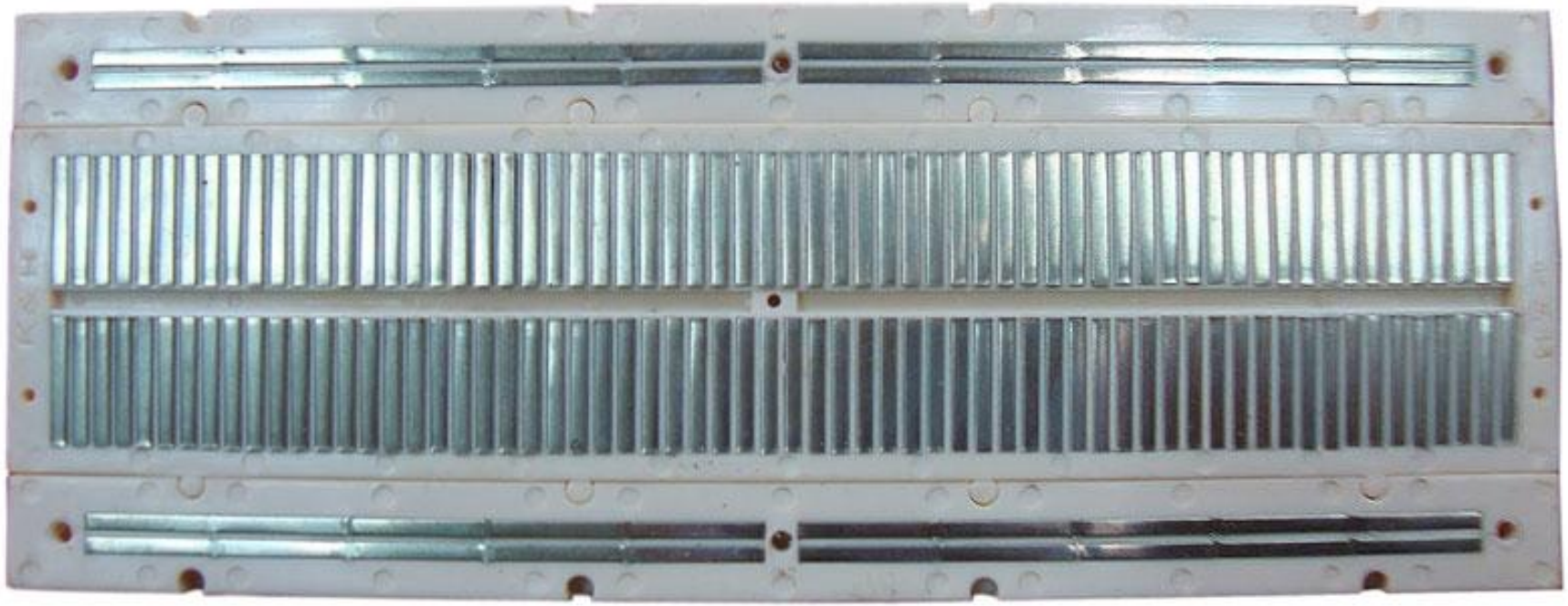
	Tensão (V)	Corrente nos LEDs (mA)
Vermelho	1,8 ~ 2,0	20
Amarelo	1,8 ~ 2,0	20
Verde	1,8 ~ 2,1	20

Protoboard

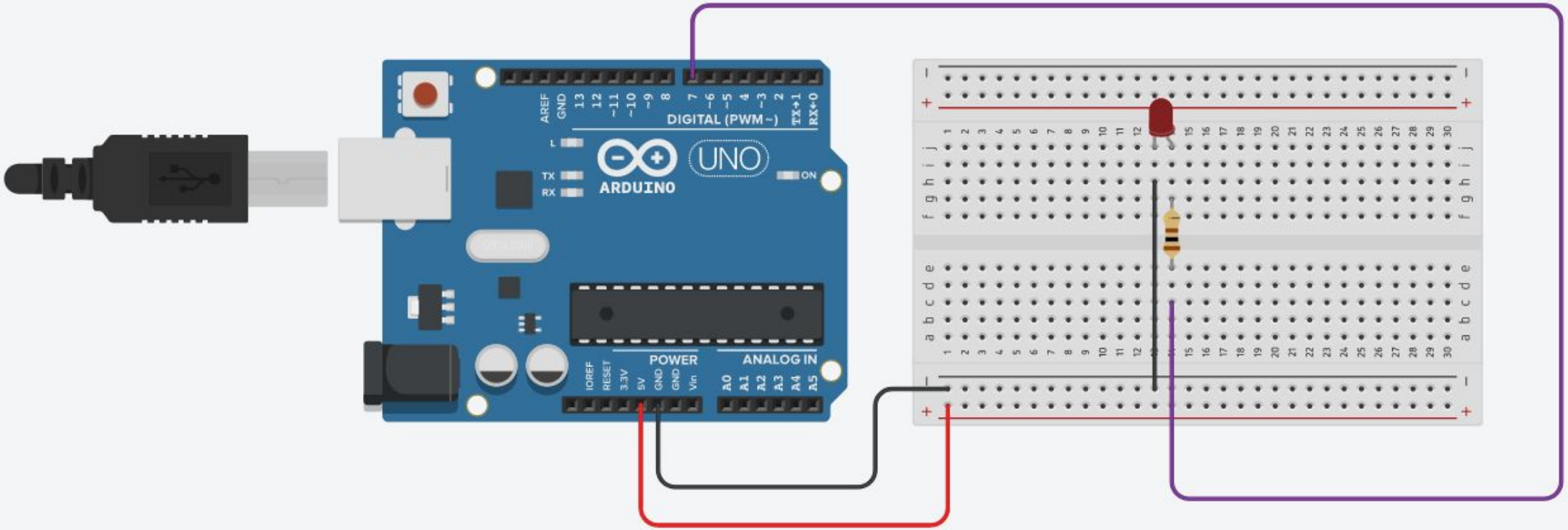


Organização das interligações da Protoboard

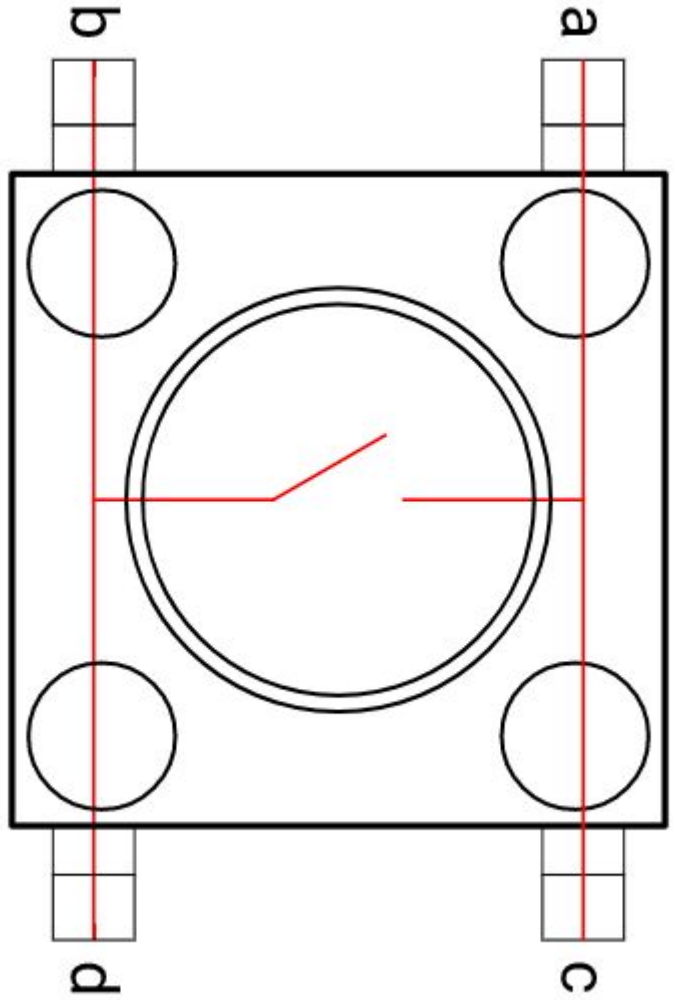
Protoboard



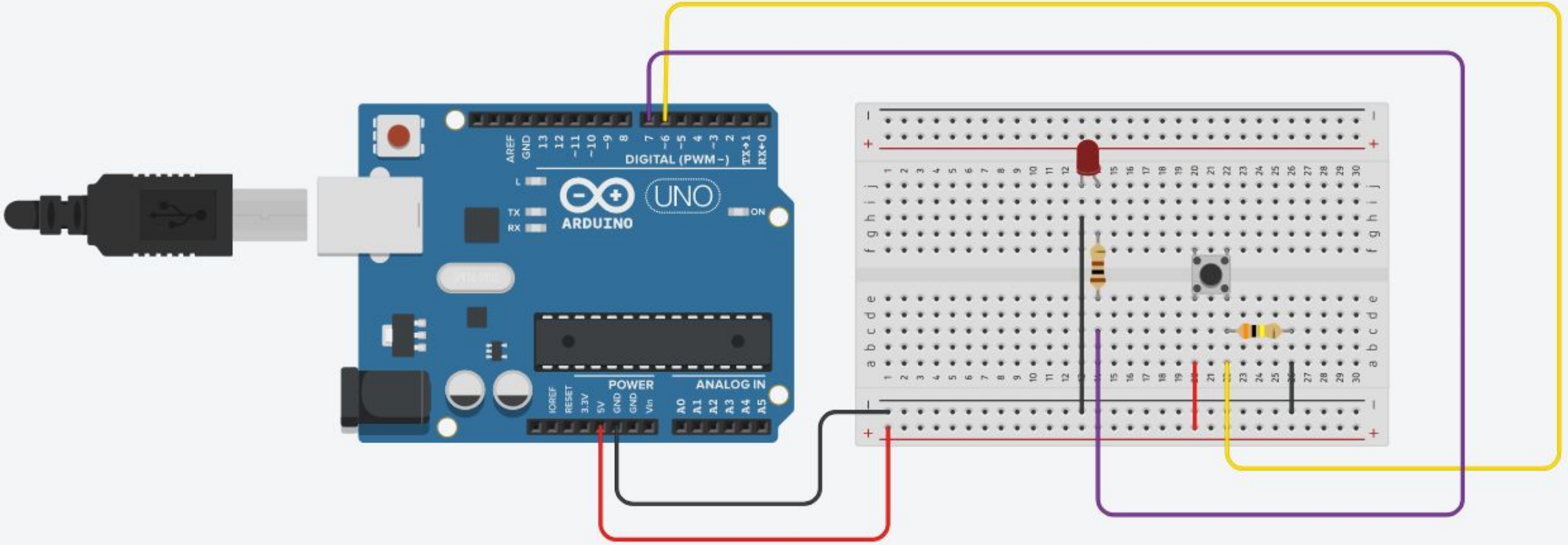
Circuito BlinkLED



Push Button



LED e Botão



Códigos e Circuitos

Bora fazer mais alguns exemplos!

Caso alguém tenha interesse posso disponibilizar uma pasta no Drive e os Circuitos no TinkerCAD.

04

DÚVIDAS, RECLAMAÇÕES OU DOAÇÕES?